I CLAIM:

1.   A method of authenticating mobile user equipment in a mobile telecommunications network comprising the steps of:

passing an authentication element forming at least part of an authentication vector, from a serving network to mobile user equipment,

deciding in the user equipment based at least in part on the value of a predetermined field contained in the authentication element, when to generate a termination message, and

passing the termination message from the mobile user equipment to the serving network which message contains a value indicating that the serving network must obtain a further authentication vector before allowing the user equipment to make further calls.

2.   A method according to claim 1, wherein the termination message is a predetermined key set identity value.

3.   A method according to claim 1, wherein the predetermined field is an authentication management field.

4.   A method according to claim 1, wherein the said decision is taken based on the total call duration which has accumulated since the authentication element

containing the predetermined field was first received by the mobile user equipment.

5. A method according to / claim 1, wherein the said decision is taken based on the time elapsed since the authentication element containing the predetermined field was first received by the mobile user equipment.

6. A method according to claim 1, wherein the said decision is taken based on the total number of calls made since the authentication element containing the predetermined field was first received by the mobile user equipment.

7. A SIM for mobile user equipment embodying the method steps of claim 1.

8. A method of authenticating mobile user equipment in a mobile telecommunications network comprising the steps of:

requesting service from a serving network to which the user equipment is not directly subscribed,

passing the request for service from the serving network to a home operator network to which the user equipment is directly subscribed,

generating an authentication vector in the home operator network which includes an authentication management field,

passing the authentication vector from the home operator network to the serving network,

passing an authentication element forming at least part of the authentication vector from the serving network to the user equipment,

extracting in the user equipment an authentication management field from the authentication element,

generating in response at least to a predetermined value of the authentication management field, a predetermined key set identifier, and

passing the key set identifier to the serving network.

9. A method according to claim 8, including deciding in the user equipment based at least in part on the value of a predetermined field contained in the authentication element, when to generate a key set identifier which contains a value indicating that the serving network must obtain a further authentication vector before allowing the user equipment to make further calls.

10. A method according to claim 9, wherein the said decision is taken based on the total call duration which has accumulated since the authentication element containing the predetermined field was first received by the mobile user equipment.

11. A method according to claim 9, wherein the said decision is taken based on the time elapsed since the authentication element containing the predetermined field was first received by the mobile user equipment.

12. A method according to claim 9, wherein the said decision is taken based on the total number of calls made since the authentication element containing the predetermined field was first received by the mobile user equipment.

13. Mobile user equipment for use in a mobile telecommunications network including means for receiving from a serving network, an authentication element forming at least part of an authentication vector, decision means for deciding in the user equipment based at least in part on the value of a predetermined field contained in the authentication element, when to generate a termination message, and means for passing the termination message from the mobile user equipment to the serving network which message contains a value indicating that the serving network must obtain a further authentication vector before allowing the user equipment to make further calls.

14. Mobile user equipment according to claim 13, including accumulator means for monitoring the total call duration which has accumulated since the authentication element containing the predetermined field was first received by the mobile user

equipment and providing a value representative of the said total call duration to the decision means.

15. Mobile user equipment according to claim 13, including timer means for measuring the time elapsed since the authentication element containing the predetermined field was first received by the mobile user equipment and providing a value representative of the said elapsed time to the decision means.

16. Mobile user equipment according to claim 13, including counter means for counting the total number of calls made since the authentication element containing the predetermined field was first received by the mobile user equipment and providing a value representative of the said total call number to the decision means.